

Water-Based Catalyst Inks And Their Use For Manufacture Of Catalyst-Coated Substrates

Abstract

The present invention relates to water-based catalyst inks and their use for
5 manufacture of catalyst-coated substrates. According to the present invention, a catalyst layer is applied to the hydrophobic surface of a substrate by using a water-based catalyst ink comprising an electrocatalyst, an ionomer and water. The catalyst ink also comprises a highly volatile surfactant having a vapor pressure at ambient temperature in the range of 1 to 600 Pa. The use of this surfactant allows applying the
10 water-based ink to the hydrophobic surface of a variety of substrates, such as gas diffusion layers, advanced ionomer membranes and polymer substrates. The required coating deposit can be applied in one coating pass and the resulting catalyst layer exhibits improved performance due to the absence of residual surfactant in the catalyst layer.